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EPRC ECONOMIC POLICY RESEARCH CENTRE

Towards Sustainable Development

POLICY BRIEF

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Justine Luwedde, Aida K. Nattabi, Isaac M.B. Shinyekwa and Enock W.N. Bulime

The infrastructure required to ensure an efficient national standards system in Uganda.

Executive Summary

Despite commendable efforts to improve the standards infrastructure and equipment in Uganda, several challenges still exist that need to be addressed to achieve this goal. In the current state, manufacturers have limited access to accredited laboratories; accredited laboratories have minimal capacity to carry out product testing; re-calibrating and servicing of equipment are infrequent. To address these challenges, it is recommended that public-private investments be made in laboratories to stimulate local manufacturing. This should consider automated or digital rapid testing equipment to quicken testing processes and decisions, train personnel, and strengthen enforcement and compliance to standards.

Introduction

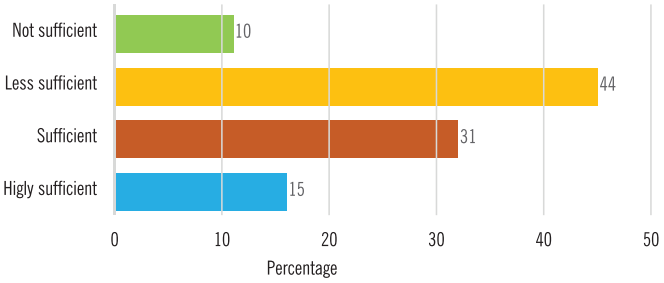
Uganda has developed about 3,600 standards[1] to respond to the envisaged import replacement and export promotion strategies. The National Standardization Strategy (2019/20—2021/22) projects the development of approximately 2,064 different standards over three years, covering chemical and consumer products (638), engineering and construction (665), food and agriculture (428) and systems and services (313). However, there are gaps regarding improving the quality of standards infrastructure necessary to replace imports and penetrate new markets. Measuring conformity and adherence to these standards requires ready and well-equipped systems, which seems inadequate. This is partly because the national quality infrastructure system falls short of basic minimum standards to meet international equivalence. Once these are met, they would significantly enhance the competitiveness of local industries, promote fair trade, and protect the health and safety of the consumers, including preventing trade in sub-standard goods.

The brief assesses the adequacy of the existing infrastructure to implement standards in pursuit of import replacement and export promotion strategies. It is based on the EPRC Research series 158, *"Does Uganda have the necessary manufacturing standards framework to pursue the third National Development Plan's Import Replacement Strategy?"* which assesses Uganda's standards infrastructure.

Methodology and data

Using the National Standards Capability Assessment Framework (NSCAF) developed by Choi *et al.* (2014) [2], the study focuses on three pillars; Standardization, Conformity Assessment and Metrology. We examine these under six assessment categories. [3] In addition, a manufacturing sector survey was conducted, and Key Informant Interviews (KIIs) were to establish the status of Uganda's standards infrastructure concerning the framework. Analysis was done by generating themes for the KIIs and a Likert scale for the six categories mentioned above. This helped establish the status of infrastructure such as laboratory facilities, equipment and ICT used to ensure conformity to standards.

Figure 1 Sufficiency of physical quality infrastructure



Source: EPRC Survey on standards (2021)

Key findings

a) Standardization

Manufacturers have limited access to accredited laboratories. Under standardization, we assessed the adequacy of infrastructure (laboratories) regarding how accessible they are to all stakeholders, particularly the manufacturers. KIIs reveal that firms have limited access to laboratory facilities and rely on the Uganda National Bureau of Standards (UNBS) facilities. These facilities are inadequate, owing to insufficient funding allocated to the bureau, consequently not covering all manufacturers. Figure 1 shows that about 44 percent of sampled manufacturers agree that the current physical quality infrastructure is less sufficient; 10 percent think they are insufficient. Although a combined 46 percent expressed sufficiency, this leaves 54 percent with challenges and hence, a problem. This also reveals that manufacturers who are well resourced have higher chances of equipping themselves with requisite infrastructure, and those unable are likely to rely on UNBS, which may not be easily accessible.

Relatedly, UNBS staff expressed inadequate tools for onsite inspection, such as rapid testing equipment. This is important because it takes ample time to pick and submit samples to the laboratory, and by the time the bureau reverts with the results, the products on the market have either been consumed or out of stock, as voiced. *"UNBS possesses one piece of equipment to test for oil viscosity, yet the process is long, given that the oil requires about one hour to heat and cool before testing." (Lubricant manufacturer, 2021).* Rapid testing equipment would thus quicken the process by making immediate decisions and ensure that unsafe goods are removed entirely from the shelves. In short, testing time is bound by the adequacy of equipment and laboratories, which have implications for business activities' continuity.

b) Conformity Assessment

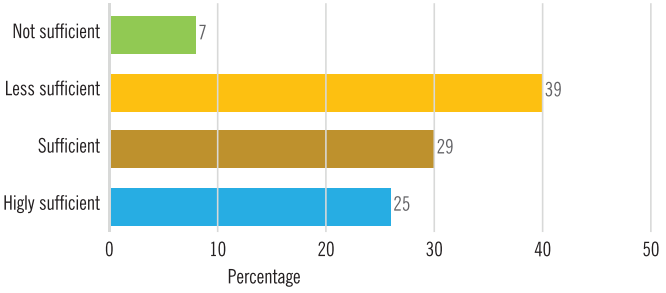
Accredited laboratories have minimal capacity to carry out product testing.

In line with conformity assessment, we assessed the capacity of accredited laboratories to carry out product testing, e.g. equipment and technology. [4,5] We noted through KIIs that the food safety laboratory, which handles microbiology and chemistry aspects, is well equipped to conduct several tests for safety (aflatoxins, lead, or microbiological contamination in food), has international accreditation, and its results are acceptable worldwide. However, other laboratories, like engineering, still have challenges, as mentioned above.

The UNBS laboratory recognition scheme has 15 recognized laboratories which comprise 11 commercial and public laboratories and 4 laboratories within the manufacturing sites. [6] However, responses from manufacturers show that many firms lack internal laboratories and the few that have them have minimal capacity to do internal testing or qualify for the Inter-laboratory Comparison Scheme, which recognizes laboratories with sufficient equipment to collaborate with UNBS. Relatedly, some manufacturers have internal testing laboratories but have not been granted recognition by UNBS as voiced; "*we applied for recognition as a private laboratory several times but were rejected by UNBS.*" (Lubricant manufacturer with internal laboratory, 2021).

Figure 2 confirms this, with 39 percent of the firms suggesting that the current capacity of product testing in accredited laboratories is less sufficient, besides 7 percent who rightly said that capacity is less satisfactory. Although 54 percent voiced sufficiency, this is almost half the sample of respondents, which does not represent those who voiced insufficiency. Therefore, private investment in laboratories is encouraged to fill infrastructure and capacity gaps to stimulate

Figure 2 Sufficiency of capacity for product testing



Source: Survey on standards (2021).

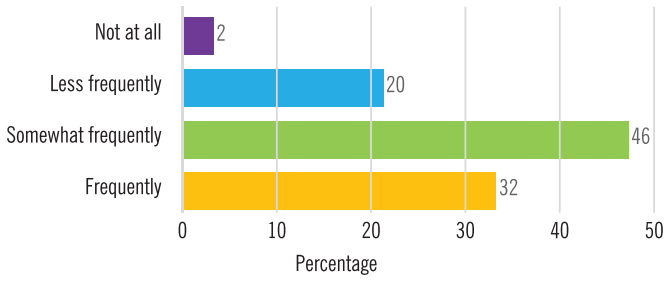
manufacturing. However, this is complicated given that Uganda lacks an accrediting body and has to rely on the South African National Accreditation System (SANAS) for its own government laboratory accreditation. This is a major limitation and should be addressed once the Accreditation Bill is passed into an Act of Parliament and accented to by the President with the consequent establishment of a Ugandan accreditation body. This will encourage able manufacturers to invest in necessary accredited laboratories to carry out product testing.

c) Metrology

Re-calibrating and servicing equipment. Under metrology, the study sought the manufacturers' views regarding how frequently measuring instruments are re-calibrated and serviced before they are used. In response, 46 percent of the manufacturers indicated that measuring instruments' recalibration and servicing are done somewhat frequently (Figure 3). This shows efforts in terms of UNBS' National Metrology Laboratory's commitment to providing accurate tests and fostering credibility for locally manufactured products. Only 32 percent of the respondents were sure of the regular and frequent recalibration and servicing of measuring equipment. However, there is still a need for improvement to regularly re-calibrate equipment to optimize production and quality.

Given the price fluctuations of raw materials, local manufacturers face constraints in adjusting to high-quality production and utilizing inputs efficiently. Therefore, recalibration of equipment is one way of increasing optimization and quality in production. However, this would also necessitate upgrading from the traditional calibration and practices of documentation that are laborious to training staff in digital/automated calibration practices to quicken the process and minimize errors.

Figure 3 Frequency of measuring instruments recalibration and servicing



Source: Survey on standards (2021).

Conclusion and policy recommendations

In Uganda, infrastructure, particularly laboratories, are vital to ensure standards' compliance (more so conformity assessment and metrology) which requires that laboratories and equipment are up to date and well maintained. We document that firms have limited access to the Uganda National Bureau of Standards (UNBS) laboratory facilities, which are inadequate owing to insufficient funding allocated to the bureau. In addition, many firms lack internal laboratories, and the few with them have minimal capacity to do internal testing or qualify for the Inter-laboratory Comparison Scheme. However, we also note that UNBS endeavours to perform accurate tests and maintain credibility for locally manufactured products. But there is still a need for improvement to regularly re-calibrate equipment for optimal production and quality. Therefore, we recommend that:

i. Public-private investment in laboratories should be encouraged to fill infrastructure and capacity gaps to stimulate local manufacturing. This can take the form of automated or digital rapid testing equipment to quicken testing processes and decisions; train appropriate personnel.
ii. The government should avail more financial resources to UNBS to acquire better equipment and recruit more staff for deployment.
iii. Finally, the accreditation body should be set up to, among other accredit, coordinate standards infrastructure in the country.

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1 See UNBS (2021) https://unbs.go.ug/content.php?src=information-resource-center&pg=content
2 See, D. G., Hyun, O. S., Hong, J. I., & Kang, B. G. (2014). Standards as catalyst for national innovation and performance–a capability assessment framework for latecomer countries. Total Quality Management & Business Excellence, 25(9-10), 969-985.
3 Laws, systems and institutions; Strategies and Implementation plans; Stakeholders; Infrastructure; Human resources; and Process.
4 UNBS operates several accredited national laboratories under its product testing infrastructure but also recognizes privately owned and public laboratories to carry out similar activities.
5 These include the National Metrology Laboratory; Chemistry; Electrical; Microbiology; Materials and Engineering. However the bureau under the Laboratory Recognition Scheme to carry out these activities. Private laboratories such as Roofings Group, Steel Rolling Mills and Madhvani Group Limited, amongst others.
6 21 laboratories testing food, water, cosmetics, chemical products, construction materials, and monitoring and measuring equipment calibration laboratories, are taking part in the recognition scheme.

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